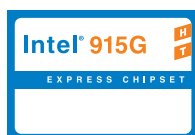




## **The Intel® 915G Express Chipset, with high-bandwidth interfaces and flexible graphics options.**



**Intel 915G Express Chipset-based platforms enable the convergence of digital entertainment and deliver enhanced stability, productivity and flexibility for improved business collaboration.**

# The Intel® 915G Express Chipset.



Platforms based on the Intel® 915G Express Chipset and Intel® Pentium® 4 processor supporting Hyper-Threading Technology<sup>1</sup> deliver innovative features and new benefits for both business and home users. The Intel 915G Express Chipset was designed to support Hyper-Threading Technology adding intelligence to help manage and prioritize multiple threads received from the processor. An HT Technology-enabled platform can improve system performance and responsiveness.

The Intel 915G Express Chipset is based on a new architecture, innovative technologies and high-bandwidth interfaces, and includes options for integrated or discrete graphics. It was designed to enable the convergence of digital entertainment, as well as enhance bandwidth-intensive consumer applications, such as audio, video, photography, and gaming. Corporate users can benefit from this high-performance stable platform, tested for reliability, that enables new levels of business collaboration and headroom for tomorrow's applications. Businesses can also take advantage of Intel® Stable Image Technology, to simplify software image management by vigorously testing Intel software drivers and utilizing unique silicon capabilities that eliminate the need for IT driver changes and redeployment for approximately 12 months from chipset launch, thus reducing training and support costs.

This highly flexible and scalable solution meets a broad range of demanding computing needs. The Intel 915G Express Chipset delivers outstanding system performance through its high-bandwidth interfaces, such as dual-channel DDR2 main memory, 800-MHz system bus, next-generation integrated graphics controller, PCI Express\* Graphics and I/O architecture, and Hi-Speed USB 2.0 connectivity. PCI Express architecture enables increased bidirectional bandwidth to the graphics and I/O interfaces. With up to 500 MB/s concurrent data transfer rate, it more than triples the I/O bandwidth of traditional PCI architecture. And up to 4 GB/s per direction PCI Express Graphics capability, it provides more than three and a half times the graphics bandwidth of previous high-performance discrete graphics solutions.

To support the faster memory, increased graphics requirements, and I/O bandwidth, the Intel 915G Express Chipset incorporates a new Graphics Memory Controller Hub (GMCH)

backbone architecture. This new design includes wider internal data buses that support dual-channel DDR2 memory technology at 533 MHz or up to 8.5 GB/s of peak memory bandwidth, for improved platform performance. The new architecture also supports both asynchronous and true isochronous data traffic, with dedicated internal pipelines and specialized arbitration. This enables the Intel 915G Express Chipset to take full advantage of the performance of these new high-speed interfaces.

The Intel 915G Express Chipset also features the Intel® Graphics Media Accelerator 900 (Intel® GMA 900), with its innovative graphics core and a redesigned 3D engine. The GMCH features Intel Dynamic Video Memory Technology (DVMT), which improves access to system memory, and Zone Rendering Technology (ZRT) enhancements for better performance.

The new graphics core, combined with Intel's high-performance dual-channel memory interface, can deliver up to twice the graphics performance of previous Intel platforms on certain industry standard benchmarks. With support for dual independent display, enhanced display modes for widescreen flat panels, and optimized 3D support, platforms based on the Intel 915G Express Chipset can deliver an intense and realistic visual experience without requiring a separate graphics card.

A high speed serial point-to-point bus architecture, known as Direct Media Interface, links the GMCH to the sixth-generation Intel® I/O Controller Hub (ICH6). This new bus delivers up to 2 GB/s concurrent bandwidth, compared to up to 266-MB/s for the previous Intel® hub architecture. Intel 915G Express Chipset-based platforms also enable system design flexibility, with support for both dual-channel DDR and dual-channel DDR2 memory, options for integrated or discrete PCI Express graphics, and additional platform capabilities via flexible ICH6 options.

The ICH6 component includes several enhancements and new capabilities, and enables system configuration options for digital home usage. The ICH6 integrates Intel® High Definition Audio (Intel® HD Audio) technology, featuring eight independent DMA audio engines that support multiple simultaneous and separate audio input and output streams. This enables high quality integrated audio that rivals the performance of high end discrete

solutions. Intel HD Audio is also capable of supporting major consumer entertainment industry formats, such as 7.1 surround sound, Dolby Digital\*, and DTS\*. An integrated Serial ATA (SATA) controller supports 4 SATA ports, each providing up to 1.5 GB/s (150 MB/s) transfer rates for SATA optical devices or hard drives. And the Advanced Host Controller Interface (AHCI) provides native hot plug and boosts performance with Native Command Queuing (NCQ) for faster boot times and file transfers. The Intel® ICH6R elevates SATA storage performance to the next level with Intel® Matrix Storage Technology. Enhanced RAID support allows critical data to be stored on one array that is designed for high reliability, while performance intensive applications like games can reside on separate array designed for maximum performance.

Intel 915G Express Chipset features deliver a compelling solution for both corporate and consumer market segments:

- 800-MHz FSB enables support for today's high-performance Intel Pentium 4 processors.
- Optimized for the Intel Pentium 4 Processor with HT Technology to enable improved system performance and responsiveness.
- Intel Stable Image Technology simplifies software image management.
- Flexible memory support, with dual-channel DDR2 533/DDR2 400 or DDR400/DDR333 SDRAM memory, providing up to 8.5 GB/s memory bandwidth, in configurations up to a maximum of 4 GB of Random Access Memory (RAM).
- Intel GMA 900, Intel's next-generation integrated graphics architecture, for exceptional performance across the full range of multimedia and 3D-intensive applications.
- PCI Express delivers up to 4 GB/s per direction for graphics bandwidth and up to 500 MB/s concurrent data transfers for I/O.
- Intel Matrix Storage Technology, with integrated Raid 0 and Raid 1 capabilities using the latest SATA interface, for accelerated disk I/O performance.
- Intel High Definition Audio featuring eight independent DMA audio engines can enable multiple separate, simultaneous audio streams.

| F E A T U R E S  | B E N E F I T S   |
|--|---|
| 800-/533-MHz System Bus                                | Supports platform longevity with high-performance Intel processor frequencies and delivers greater system bandwidth.  |
| Hyper-Threading Technology Support                     | Increases system responsiveness and performance.  |
| LGA775 Processor Package                               | Supports the highest performance Intel desktop processors on the LGA775 processor package.  |
| Intel® Graphics Media Accelerator 900 (Intel® GMA 900) | Incorporates the latest Microsoft* DirectX*9 support capabilities, allowing software developers to create real-life environments and characters. Dual independent display, enhanced display modes for widescreen flat panels, and optimized 3D support deliver an intense and realistic visual experience without requiring a separate graphics card. |
| PCI Express*   | Designed for bandwidth-intensive applications. PCI Express x16 graphics delivers up to 4 GB/s per direction, more than three and a half times the bandwidth of previous high-end discrete graphics solutions. PCI Express x1 I/O offers 500 MB/s concurrently, over three and a half times the bandwidth of traditional PCI architecture.             |
| Dual-channel DDR2 or DDR                               | Flexible memory technology allows a full spectrum of DDR2 and DDR implementations, from highest performance to cost-effective systems.  |
| Direct Media Interface (DMI)                           | Dedicated data paths deliver up to 2.0 GB/s concurrent bandwidth compared to 266 MB/s bandwidth for previous generation Intel® hub architecture, to support more I/O intensive applications.  |
| Intel® High Definition Audio                           | Support for new consumer electronics audio formats, such as Dolby* Digital, DTS* and multiple streams, enables new PC uses.   |
| Intel® Matrix Storage Technology                       | Boosts storage performance with RAID 0 while protecting your digital memories with RAID 1 on the same disks. Advanced Host Controller Interface further boosts performance with Native Command Queuing, and provides native hot plug.   |
| Integrated Serial ATA Controller                       | Facilitates high-speed storage and data transfers at up to 150 MB/s for each of 4 ports. Allows easier hard drive upgrades and expansion for new SATA optical drives with 4 SATA/150 ports.   |
| Ultra ATA/100  | Takes advantage of the existing industry HDD and optical drive interfaces.  |
| Integrated Hi-Speed USB 2.0                            | Eight ports offer up to 40X greater bandwidth over USB 1.1 for high-speed I/O peripherals, such as digital video cameras.   |
| Intel Serial Digital Video Output (SDVO)               | Dual SDVO ports offer maximum display (digital CRT or TV) flexibility through the existing PCI Express x16 connector.   |

| P R O D U C T                                  |  | P A C K A G E  |  |
|--|--|--|--|
| Intel® Pentium® 4 Processor                    |  | 775 Land Grid Array (LGA)  |  |
| Intel® 82915G GMCH                             |  | 1210 Flip Chip Ball Grid Array (FCBGA)   |  |
| Intel® ICH6/ICH6R                              |  | 609 Micro Ball Grid Array (mBGA)   |  |
| I N T E L   A C C E S S                        |  |  |  |
| Developer's Site                               |  | developer.intel.com/   |  |
| Motherboard Selector Guide                     |  | www.intel.com/go/boards  |  |
| Other Intel Support                            |  | support.intel.com  |  |
| Intel Literature Center:                       |  | (800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada)<br>International locations please contact your local sales office. |  |
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<sup>1</sup> Look for systems with the Intel® Pentium® 4 Processor with HT Technology logo and also including an Intel® 925, 915, or 910 Express Chipset (see the product spec sheet or ask your salesperson). Performance and functionality will vary depending on (i) the specific hardware and software you use and (ii) the feature enabling/system configuration by your system vendor. See [www.intel.com/products/ht/hyperthreading\\_more.htm](http://www.intel.com/products/ht/hyperthreading_more.htm) for information on HT Technology or consult your system vendor for more information.

The Intel® Pentium® 4 processor and Intel® 915G Express Chipset may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata for commercially available products are available on request. Intel Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in an Intel® product. Information contained herein supersedes previously published specifications on these devices from Intel.

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